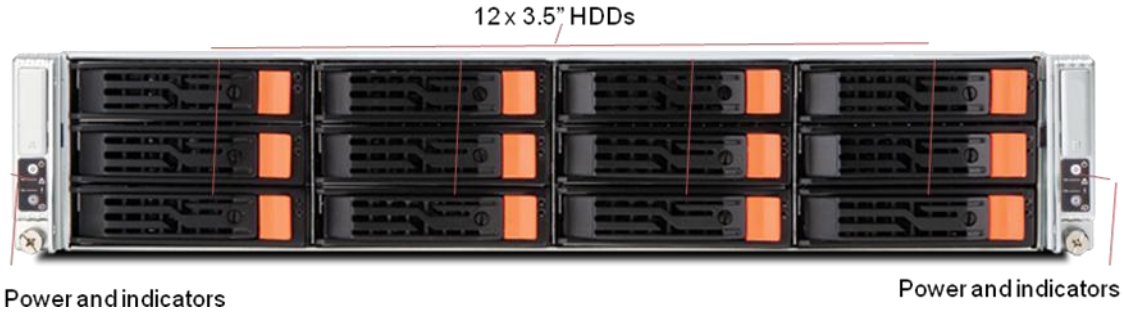
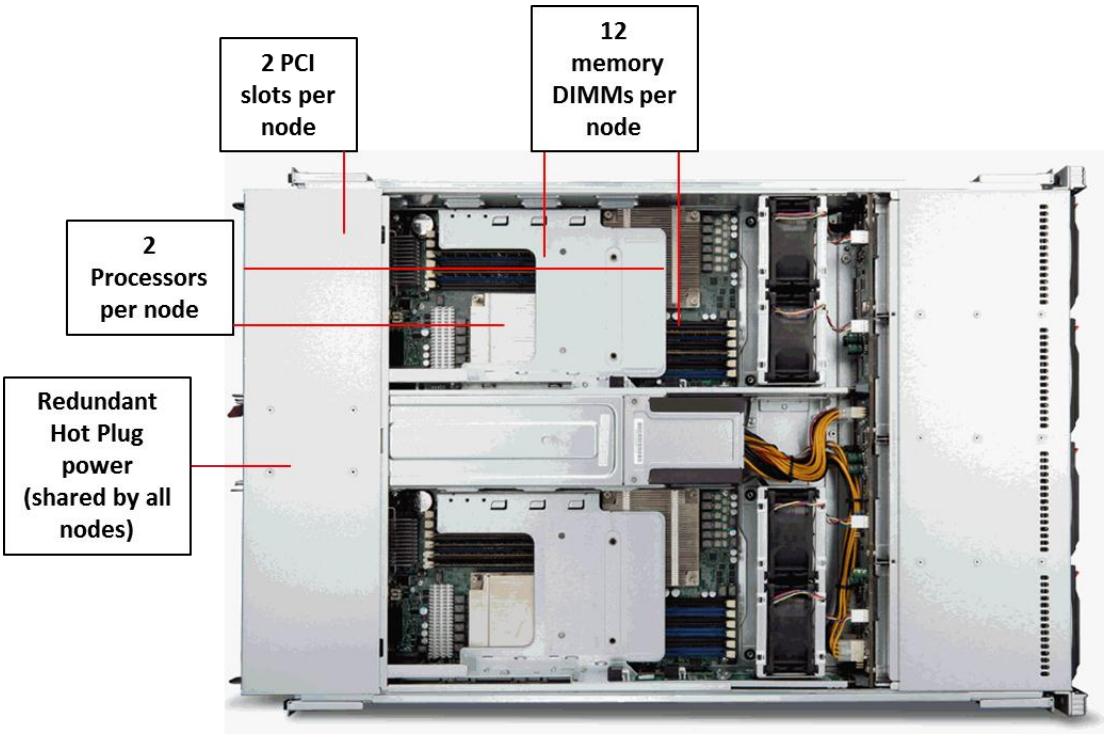
Acer AW2000ht w/ AW170htx F1 Specifications

Product Overview

The Acer Gemini AW2000ht w/AW170htx is a high performance and highly configurable multi-node server designed for peak power efficiency and maximum component efficiency in a space-saving rack form factor.

Product Front View

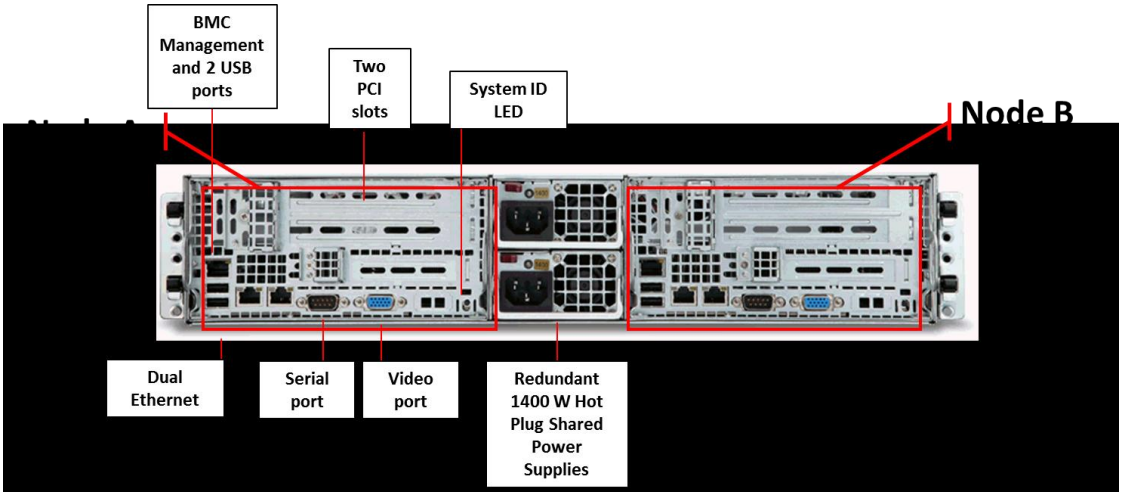




Product Inside View (per node):

12 x ECC DDR3 1066/1333 MHz registered or unbuffered ECC DIMMs (24 total per enclosure)
2 x Intel® Xeon® 5600 Series processors supporting up to 6-cores per processor (4 total per enclosure)
2 x 1400 W Gold level (90% efficiency) hot-pluggable power supply
4 x dual-rotor system cooling fans
Power button, System ID button, LED indicators (Power, HDD activity, LAN 1-2 status, system ID/status/fault) (2 total per enclosure)
Support for up to six 3.5" hot-pluggable SATA hard disk drives (12 total per enclosure)
2 x PCI Express® slot (PCI Express x8)

Product Rear View (per node):



2 x USB 2.0 connectors
Management IPMI LAN connector
COM (Serial) connector
Video connector
2 x Gigabit LAN connectors
ID LED

What's New?

- nVidia Tesla GPU support
- 2 x 1400 W 80PLUS® gold-level efficient power supply units (1+1 redundant, hot-pluggable)
- InfiniBand with QDR connection (AW170htq models)

Product Specifications (per node)

Nodes[1]

- Up to two AW170ht F1 nodes with standard PCIe® 2.0
- Up to two AW170htq F1 nodes with standard PCIe® 2.0 and QDR InfiniBand

Processors and chipset

- Up to two Intel® Xeon® 5600 series processors
- Chipset: Intel® 5520 (AW170hq nodes) and 5500 (AW170ht nodes)

Memory[2]

- Memory capacity:
  - Registered DIMM: 2, 4, 8, 16 GB[3]
  - Unbuffered DIMM: 2, 4 GB
- Up to 192 GB using registered DIMMs when fully populated with 2 DIMMs per channel, 12 slots
- Up to 48 GB using unbuffered DIMMs when fully populated with 2 DIMMs per channel, 12 slots

Network controllers

- 2 x Integrated Intel 82574L single port Gigabit Ethernet Controllers (2 ports total per node)

[1] Any of the node options can be used together
[2] Mixed use of registered memory and unbuffered ECC memory not supported
[3] 16 GB memory modules available by special request only

Memory Support Specification

Registered type	DDR3 1066/ 1333 MHz
	Capacity: 2, 4, 8, 16 GB
	Voltage: 1.5 V
	Maximum: 192 GB per node (16 GBx12 DIMMs)
Unbuffered type	DDR3 1066/ 1333 MHz
	Capacity: 2, 4 GB
	Voltage: 1.5 V
	Maximum: 48 GB per node (4 GB x 12 DIMMs)

Note: Mixed use of registered memory and unbuffered ECC memory not supported.
16 GB memory modules available by special request only

Memory Population

The systems have twelve DIMM slots per node. Each CPU controls six slots. The DIMM slots support DDR3-1333 registered/unbuffered ECC memory modules.

- ¶Each CPU has three memory channels (channel 1, 2 and 3)
- ¶Each channel has 2 slots

The socket furthest from the CPU is socket A **(P1DIMM1A, P1DIMM2A, P1DIMM3A in blue color)**, while the nearest is socket B **(P1DIMM1B, P1DIMM2B, P1DIMM3B in black)**. For all memory modes, socket A in each channel needs to be populated first. If socket A is empty, socket B cannot be used. It is recommended that the higher rank and largest capacity DIMM be installed in slot A.

NOTE:

- ¶ In a single-processor server, memory modules are installed into the P1DIMMxx slots.
- ¶ The P2DIMMxx slots are enabled when a second CPU is installed on the main board.

For the system to function properly, DIMM modules must be installed following the slot sequence listed below. DIMM modules of the same type, size and manufacturer must be installed in the same DIMM colored slots.

- ¶ CPU 1 ±populate DIMM slot P1DIMM1A first, followed by slots P1DIMM2A, P1DIMM3A, P1DIMM1B, P1DIMM2B, P1DIMM3B.
- ¶ CPU 2 ±populate DIMM slot P2DIMM1A first, followed by slots P2DIMM2A, P2DIMM3A, P2DIMM1B, P2DIMM2B, P2DIMM3B.

DIMM slot notation illustrated in table below:

CPU1 (Rear CPU)	P1DIMM1B	P1DIMM1A	P1DIMM2B	P1DIMM2A	P1DIMM3B	P1DIMM3A
	Black	**Blue**	**Black**	**Blue**	**Black**	**Blue**

CPU2 (Front CPU)	P2DIMM1B	P2DIMM1A	P2DIMM2B	P2DIMM2A	P2DIMM3B	P2DIMM3A
	Black	**Blue**	**Black**	**Blue**	**Black**	**Blue**

Independent mode (please refer to the User Guide for more information)

¶ In this mode all memory is accessible and ECC protected

Single-processor configuration

Total Memory	P1 1B	P1 1A	P1 2B	P1 2A	P1 3B	P1 3A
2GB		2GB				
4GB		2GB		2GB		
6GB		2GB		2GB		2GB
8GB	2GB	2GB	2GB	2GB		
12GB	2GB	2GB	2GB	2GB	2GB	2GB
4GB		4GB				
8GB		4GB		4GB		
12GB		4GB		4GB		4GB
16GB	4GB	4GB	4GB	4GB		
24GB	4GB	4GB	4GB	4GB	4GB	4GB
8GB		8GB				
16GB		8GB		8GB		
24GB		8GB		8GB		8GB
32GB	8GB	8GB	8GB	8GB		
48GB	8GB	8GB	8GB	8GB	8GB	8GB
16GB*		16GB				
32GB*		16GB		16GB		
48GB*		16GB		16GB		16GB
64GB*	16GB	16GB	16GB	16GB		
96GB*	16GB	16GB	16GB	16GB	16GB	16GB

* 16 GB memory modules available by special request only

Dual-processor configuration

	CPU1						CPU2					
Total Memory	P1 1B	P1 1A	P1 2B	P1 2A	P1 3B	P1 3A	P2 1B	P2 1A	P2 2B	P2 2A	P2 3B	P2 3A
4GB		2GB						2GB				
8GB		2GB		2GB				2GB		2GB		
12GB		2GB		2GB		2GB		2GB		2GB		2GB
16GB	2GB	2GB	2GB	2GB			2GB	2GB	2GB	2GB		
18GB	2GB	2GB	2GB	2GB	2GB	2GB		2GB		2GB		2GB
24GB	2GB	2GB	2GB	2GB	2GB	2GB	2GB	2GB	2GB	2GB	2GB	2GB
8GB		4GB						4GB				
16GB		4GB		4GB				4GB		4GB		
24GB		4GB		4GB		4GB		4GB		4GB		4GB
32GB	4GB	4GB	4GB	4GB			4GB	4GB	4GB	4GB		
36GB	4GB	4GB	4GB	4GB	4GB	4GB		4GB		4GB		4GB
48GB	4GB	4GB	4GB	4GB	4GB	4GB	4GB	4GB	4GB	4GB	4GB	4GB
16GB		8GB						8GB				
32GB		8GB		8GB				8GB		8GB		
48GB		8GB		8GB		8GB		8GB		8GB		8GB
72GB	8GB	8GB	8GB	8GB	8GB	8GB		8GB		8GB		8GB
96GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB
64GB*		16GB		16GB				16GB		16GB		
96GB*		16GB		16GB		16GB		16GB		16GB		16GB
128GB*	16GB	16GB	16GB	16GB			16GB	16GB	16GB	16GB		
144GB*	16GB	16GB	16GB	16GB	16GB	16GB		16GB		16GB		16GB
192GB*	16GB	16GB	16GB	16GB	16GB	16GB	16GB	16GB	16GB	16GB	16GB	16GB

* 16 GB memory modules available by special request only

Mirroring mode:

- In mirroring mode, the memory contains a primary image and a copy of the primary image therefore the effective size of memory is reduced by one half.
- Channel 3 has no function in these modes.
- Follow the population rules described in independent mode.
- Mirroring mode needs the channel 1 & channel 2 DIMMs to be identical. DIMM slot populations within a channel do not have to be identical but the same DIMM slot location across channel 1 and channel 2 must be the same. DIMM1A and DIMM2A should be the same type, size and manufacturer. DIMM1B and DIMM2B memory should be the same type, size and manufacturer. DIMM1C and DIMM2C memory should be the same type, size and manufacturer.
- Same rules apply to CPU2.
- Please refer to the User Guide for complete population rules for both single and dual processor configurations.

Lockstep mode:

- In Lockstep Channel Mode, each memory access is 128-bit data access that spans Channel 1 and Channel 2. This is done to support SDDC for DRAM devices with 8-bit wide data ports. The same address is used on both channels such that an address error on any channel is detectable.
- Lockstep Channel mode is the only RAS mode that supports x8 SDDC.
- Channel 3 has no function in these modes.
- Follow the population rules described in independent mode.
- Lockstep mode needs the channel 1 & channel 2 DIMMs to be identical. DIMM slot populations within a channel do not have to be identical but the same DIMM slot location across channel 1 and channel 2 must be the same. DIMM1A and DIMM2A should be the same type, size and manufacturer. DIMM1B and DIMM2B memory should be the same type, size and manufacturer. DIMM1C and DIMM2C memory should be the same type, size and manufacturer.
- Same rules apply to CPU2.
- Please refer to the User Guide for complete population rules for both single and dual processor configurations.

Sparing mode:

- In sparing mode, if the system detects degrading memory, the data in the failed channel will be copied to the spare channel. The failed channel is then isolated and the spare channel becomes active. Any uncorrectable error detected before the isolation will cause the system to stop normal operation.
- Channel 3 is the spare channel. Therefore, the effective size will be reduced by one-third.
- Follow the population rules described in independent mode.
- Sparing mode needs all three channels to utilize identical DIMMs. 1A, 2A and 3A should be the same type, size and manufacturer. 1B, 2B and 3B memory should be the same type, size and manufacturer. 1C, 2C and 3C memory should be the same type, size and manufacturer.
- Same rule is applied to CPU2.
- Please refer to the User Guide for complete population rules for both single and dual processor configurations.

Memory Identification

Generally, there is memory information printed on the label of the DIMM, but different vendors may have different formats. For example:

4GB 2Rx4 PC3-10600R xx xx xxx

1. Density

- 2GB, 4GB, 8GB, 16GB
- Intel® Xeon® 5600 series processors support DIMMs organized by 1Gb, 2Gb or 4Gb DRAM chips

2. Rank

- 1R = Single Rank
- 2R = Dual Rank
- 4R = Quad Rank

3. Bit Organization

- This platform supports x4 and x8
- 1 R W H , W ¶ V Q R W U H F R s P w t h d f e r W b t o r g a [i 0 3 P a [i 0 3 in one system

4. Speed

- PC3 ±6400 => DDR3- 800
- PC3 ±8500 => DDR3- 1066
- PC3 ±10600 => DDR3- 1333

Power Specification

1400 W Power Supply							
Operational input voltage range (Vrms)	100 - 240 VAC						
Frequency range (nominal) (Hz)	50 / 60						
Nominal input voltage (Vrms)	**100**	**120**	**208**	**200**	**220**	**230**	**240**
Maximum rated output wattage	1100	1100	1400	1400	1400	1400	1400
Nominal input current (A rms)	13.36	11.04	8.01	7.89	7.21	6.88	6.55
Maximum rated input wattage rating (Watts)	1336	1323	1666	1578	1586	1582	1572
Maximum rated VA (Volt-Amp)	1328	1320	1657	1569	1577	1573	1563
Efficiency (%) at maximum rated output wattage	87.16	87.32	88.30	88.62	88.85	89.07	89.93
Power factor	0.994	0.996	0.995	0.994	0.994	0.994	0.994
Leakage current (mA)	0.51	0.62	1.03	1.05	1.15	1.20	1.25
Maximum inrush current (A peak)	17.4	17.5	17.6	17.9	18.1	17.5	17
Maximum inrush current duration (mS)	4.70	4.69	4.77	4.72	4.67	4.71	4.75
Maximum British thermal unit rating (BTU/hr.)	3753.2	3753.2	4776.8	4776.8	4776.8	4776.4	4776.8

1 KW = 3412 BTU/hr.

Hardware Key Options/Components

CPU	z	Intel® Xeon® 5600 series
HDD	z	6 $ 7 $ ´ * % * % 7 % 7 %
Memory	z	DDR3 1333 MHz Unbuffered ECC 2/ 4 GB
	z	DDR3 1333 MHz Registered ECC 2/ 4/ 8/ 16GB
SAS HBA	z	SAS HBA, internal 2-ports, external 2-ports, PCI-E x1
Networking	z	Gigabit CT Desktop Adapter, Gigabit Adapter10/100/1000 Mbps connection for PCI Express
	z	Gigabit ET Server Adapter, Gigabit 10/100/1000 Mbps, PCIe, dual-port
	z	Gigabit ET2 Server Adapter, Gigabit Adapter 10/100/1000 Mbps, PCIe, quad-port
	z	Ethernet Server Adapter X520-DA2, 10 Gb, Dual ports, direct attach
	z	Ethernet Server Adapter X520-LR1, single port, LR
	z	Ethernet Server Adapter X520-SR1, single port, SR
	z	Ethernet Server Adapter X520-SR2, dual ports, SR
Tape and disk-based backup	z	LTO-3 1U SAS Rackmount (external) Tape Drive kit
	z	LTO-4 1U SAS Rackmount (external) Tape Drive kit
TPM	z	TPM module (TPM 1.2)
Fibre channel HBA	z	Qlogic SANblade® QLE2460 single port fibre channel to PCI express host bus adapter, 1 ch, 8 Gb FC HBA, PCIe x8, single LC port (std & low-profile bracket)
	z	Qlogic SANblade® QLE2462 dual ports fibre channel to PCI express host bus adapter, 2ch, 8 Gb FC HBA, PCIe x8, dual LC port (std & low-profile bracket)
Rackmount kits	z	Sliding rails (Cable Management Arm option not available)

Service and Support

Acer Servers offers a comprehensive service suite to take care of your hardware investment. Users can select the 1-year standard warranty or choose extended warranties and services[7].

The standard warranty for the AW2000ht F1 series includes one year Parts including Labor and On-Site coverage.

Warranty repairs may be accomplished through the use of Customer Replacement Unit (CRU) parts. CRU parts include: Hot Plug Hard Drives and Hot Plug Power Supplies. These parts are designed for easy replacement without tools. Travel and labor charges may apply if customers decline to replace a CRU part.

In a continuing effort to improve the quality of our products, information in this document is subject to change without notice. Images shown are only representations of some of the configurations available for this model. Availability may vary depending on region.

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[7] Extension warranty services vary by country. Please contact Acer authorized resellers for more information.

Acer Standard Server Models	**Part Number**
Acer AW2000ht-AW170ht LFF Models	
Acer AW2000ht-AW170ht F1, Two Nodes each with: 1x Xeon E5606, 2x4GB Reg, no HDD, no Infiniband, 2x GBit LAN onboard, Acer Smart Setup, Acer Smart Manager. System comes with 1x Hot Swap 1400W PSU, UPS Power Cable; second PSU optional, Rail kit (2U) Included	TG.R7800.012
Acer AW2000ht-AW170ht F1, Two Nodes each with: 1x Xeon E5620, 2x4GB Reg, no HDD, no Infiniband, 2x GBit LAN onboard, Acer Smart Setup, Acer Smart Manager. System comes with 1x Hot Swap 1400W PSU, UPS Power Cable; second PSU optional, Rail kit (2U) Included	TG.R7800.002
Acer AW2000ht-AW170ht F1, Two Nodes each with: 1x Xeon L5630, 2x4GB Reg, no HDD, no Infiniband, 2x GBit LAN onboard, Acer Smart Setup, Acer Smart Manager. System comes with 1x Hot Swap 1400W PSU, UPS Power Cable; second PSU optional, Rail kit (2U) Included	TG.R7800.006
Acer AW2000ht-AW170ht F1, Two Nodes each with: 1x Xeon X5650, 2x4GB Reg, no HDD, no Infiniband, 2x GBit LAN onboard, Acer Smart Setup, Acer Smart Manager. System comes with 1x Hot Swap 1400W PSU, UPS Power Cable; second PSU optional, Rail kit (2U) Included	TG.R7800.004
Acer AW2000ht-AW170ht F1, Two Nodes each with: 1x Xeon X5675, 2x4GB Reg, no HDD, no Infiniband, 2x GBit LAN onboard, Acer Smart Setup, Acer Smart Manager. System comes with 1x Hot Swap 1400W PSU, UPS Power Cable; second PSU optional, Rail kit (2U) Included	TG.R7800.013
Acer AW2000ht-AW170htq F1, Two Nodes each with: 1x Xeon E5606, 2x4GB Reg, no HDD, QDR Infiniband, 2x GBit LAN onboard, Acer Smart Setup, Acer Smart Manager. System comes with 1x Hot Swap 1400W PSU, UPS Power Cable; second PSU optional, Rail kit (2U) Included	TG.R7800.014
Acer AW2000ht-AW170htq F1, Two Nodes each with: 1x Xeon E5620, 2x4GB Reg, no HDD, QDR Infiniband, 2x GBit LAN onboard, Acer Smart Setup, Acer Smart Manager. System comes with 1x Hot Swap 1400W PSU, UPS Power Cable; second PSU optional, Rail kit (2U) Included	TG.R7800.008
Acer AW2000ht-AW170htq F1, Two Nodes each with: 1x Xeon X5650, 2x4GB Reg, no HDD, QDR Infiniband, 2x GBit LAN onboard, Acer Smart Setup, Acer Smart Manager. System comes with 1x Hot Swap 1400W PSU, UPS Power Cable; second PSU optional, Rail kit (2U) Included	TG.R7800.009
Acer AW2000ht-AW170htq F1, Two Nodes each with: 1x Xeon X5675, 2x4GB Reg, no HDD, QDR Infiniband, 2x GBit LAN onboard, Acer Smart Setup, Acer Smart Manager. System comes with 1x Hot Swap 1400W PSU, UPS Power Cable; second PSU optional, Rail kit (2U) Included	TG.R7800.015
Acer AW2000ht-AW170htq F1, Two Nodes each with: 1x Xeon L5630, 2x4GB Reg, no HDD, QDR Infiniband, 2x GBit LAN onboard, Acer Smart Setup, Acer Smart Manager. System comes with 1x Hot Swap 1400W PSU, UPS Power Cable; second PSU optional, Rail kit (2U) Included	TG.R7800.011

Acer Key Options	**Part Number**
Acer CPU Heatsink	
Note: one heatsink required for each processor option kit	
Acer Intel CPU heat-sink (TDP 95W supported) for 1U rack, Gemini, and blade server	TC.34900.005
Acer Processor upgrade kits	
Note: one heatsink required for each processor option kit	
Note: all processors in a system must match	
Acer Intel® Xeon® processor E5606 (B-1) Kit	TC.32500.041
Acer Intel® Xeon® processor E5620 (B-1) Kit	TC.32500.024
Acer Intel® Xeon® processor L5630 (B-1) Kit	TC.32500.026
Acer Intel® Xeon® processor X5650 (B-1) Kit	TC.32500.022
Acer Intel® Xeon® processor X5675 (B-1) Kit	TC.32500.039
Acer Memory	
Note: cannot mix Unbuffered memory with Registered memory	
Note: please refer to "Memory Support" Section for details on configuring memory	
Acer Unbuffered Memory	
Acer 2GB DDR3-1333 Unbuffered Memory Kit (1 pc.)	TC.33100.035
Acer 4GB DDR3-1333Unbuffered Memory Kit (1 pc.)	TC.33100.037
Acer Registered Memory	
Acer 2GB DDR3-1333Registered Memory Kit (1 pc.)	TC.33100.029
Acer 4GB DDR3-1333Registered Memory Kit (1 pc.)	TC.33100.031
Acer 8GB DDR3-1333Registered Memory Kit (1 pc.)	TC.33100.042
Acer Storage	
Acer SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
Acer 250GB 3Gb/s 7.2K 3.5-inch Enterprise SATA HDD Kit	TC.32700.068
Acer 500GB 3Gb/s 7.2K 3.5-inch Enterprise SATA HDD Kit	TC.32700.066
Acer 1TB 3Gb/s 7.2K 3.5-inch Enterprise SATA HDD Kit	TC.32700.064
Acer 2TB 3Gb/s 7.2K 3.5-inch Enterprise SATA HDD Kit	TC.32700.062
Acer SAS Storage Controllers	
Acer 4-port (2 int., 2 ext.) 3Gb/s SAS HBA	TC.32300.008
Acer Fibre Channel Storage Controllers	
Acer 8Gb/s Single Port Fibre Channel HBA Kit	TC.32300.024
Acer 8Gb/s Dual Port Fibre Channel HBA Kit	TC.32300.026
Acer Tape Drives	
Acer LTO-3 1U Rackmount (ext.) Tape Drive Kit	TC.34000.008
Acer LTO-4 1U Rackmount (ext.) Tape Drive Kit	TC.34000.009

Acer Additional Upgrades	
Acer Gigabit Single Port LAN Adapter Kit	TC.32200.011
Acer Gigabit Dual Port Server LAN Adapter Kit	TC.32200.009
Acer Gigabit Quad Port Server LAN Adapter Kit	TC.32200.010
Acer 10 Gigabit Dual Port (DA) Server LAN Adapter Kit	TC.32200.012
Acer 10 Gigabit Single Port (SR) Server LAN Adapter Kit	TC.32200.014
Acer 10 Gigabit Single Port (LR) Server LAN Adapter Kit	TC.32200.013
Acer 10 Gigabit Dual Port (SR) Server LAN Adapter Kit	TC.32200.015
Acer Operating Systems	
Windows Server Enterprise 2008	
Acer ROK Windows SVR 2008 R2 Enterprise (64bit,25Clt,EN)	TC.34400.035
Acer ROK MICROSOFT Win SVR 2008 64bit Ent R2 10 Clt EN W/COA W/CD/DVD ACER 1-8CPU	TC.34400.034
Windows Server Standard 2008	
Acer ROK MICROSOFT Win SVR 2008 64bit Std R2 5 Clt EN W/COA W/CD/DVD ACER 1-4CPU	TC.34400.033
Windows Server Web Edition	
Acer ROK MICROSOFT Windows Server 2008 R2 Web(64bit,EN) Kit	TC.34400.075
Microsoft CAL's	
Acer Windows Server 2008 CAL EN (5 Device)	TC.34400.061
Acer Windows Server 2008 CAL EN (5 User)	TC.34400.063
Acer Services	
Acer Upgrade from 1 year Parts/1 year Labor/1 year On-Site to 3 years Parts/Labor/On-site Service	146.AD314.005
Acer Upgrade from 1 year Parts/1 year Labor/1 year On-Site to 3 years Parts/Labor/On-site Service with 4hr response	146.AD316.008